CLAIMS

We Claim:

1. A method for attaching a wire in a semiconductor device comprising:

feeding a wire through a capillary;

attaching a first end of the wire onto a first contact point;

raising the capillary straight up from the first contact point while the wire continues to feed out of the capillary;

moving the capillary towards a second contact point whereby the wire that is fed out of the capillary is drawn towards the second contact point; and

attaching the wire to the second contact point wherein a segment of the wire near the first contact point forms a wire loop that has a small loop height.

2. A method as recited in claim 1 further comprising:

controlling the capillary such that the only lateral movement of the capillary is towards the second contact point.

3. A method as recited in claim 1 wherein the operation of attaching the first end of the wire comprises ball bonding the wire to the first contact point and wherein the operation of attaching the wire to the second contact point comprises stitch bonding the wire to the second contact point.

4. A method as recited in claim 3 wherein a segment of the wire that is proximate to the ball bonded portion of the wire has a curvature that only curves towards the second contact point.

5. A method as recited in claim 1 wherein the first contact point is a bond pad on a semiconductor die and the second contact point is on a contact lead.

6. A method as recited in claim 1 wherein the first contact point is on a contact lead and the second contact point is a bond pad of a semiconductor die.

7. A method as recited in claim 1 wherein the first contact point is a bond pad of a first semiconductor die and the second contact point is a bond pad of a second semiconductor die, which is stacked on top of the first semiconductor die.

8. A method as recited in claim 7 wherein at least two wires are connected between the first and the second semiconductor die and wherein the two wires cross each other without touching each other.

9. A method as recited in claim 1 further comprising:

repeating the steps of claim 1 in order to attach multiple wires between respective contact points such that at least two bonded wires cross each other without touching.

10. A method as recited in claim 9 wherein the capillary rises upwards to a first height while attaching a first wire and to a second height while attaching a second wire such that the second wire crosses the first wire at a height that is higher than that of the first wire.

11. A method as recited in claim 1 further comprising:

controlling the capillary such that the capillary attaches the wire to the second contact point at a height that is within 3 mils of the height of the first contact point.

12. A method as recited in claim 3 wherein a heat affect zone is a region that extends approximately 3-4 mils above the semiconductor die and wherein the height of the wire loop is smaller than or substantially equal to a height of the heat affected zone.

13. A method as recited in claim 1 wherein the loop height is measured from the first contact point and the wherein the loop height is approximately equal to or smaller than three diameters of the wire.

14. A method as recited in claim 1 further comprising:

repeating the steps of claim 1 in order to attach multiple wires between respective contact points such that each of the wires have approximately the same loop height.

15. A method for attaching a wire to a first and a second contact point in a semiconductor device comprising:

feeding a wire through a capillary;

attaching a first end of the wire onto a first contact point;

raising the capillary up from the first contact point while the wire continues to feed out of the capillary;

moving the capillary in a lateral direction that is only towards the second contact point, whereby the wire that is fed out of the capillary is drawn towards the second contact point; and

attaching the wire to the second contact point wherein a segment of the wire near the first contact point forms a wire loop that has a small loop height.

16. A method as recited in claim 15 wherein the wire is ball bonded to the first contact point and stitch bonded to the second contact point.

17. A method as recited in claim 15 further comprising:

repeating the steps of claim 15 in order to attach multiple wires between respective contact points such that at least two bonded wires cross each other without touching.

18. A method as recited in claim 17 wherein the capillary rises upwards to a first height while attaching a first wire and to a second height while attaching a second wire such that the second wire crosses the first wire at a height that is higher than that of the first wire.

19. A method as recited in claim 15 further comprising:

controlling the capillary such that the capillary attaches the wire to the second contact point at a height that is within 3 mils of the height of the first contact point.

20. A semiconductor device package comprising:

a semiconductor die;

a contact lead positioned proximate to the die; and

a wire that is connected between the die and the contact lead wherein a segment of the wire forms a wire loop and wherein the height of the wire loop is measured from a

top surface of the semiconductor die and the height of the loop height is approximately equal to or smaller than three diameters of the wire.

21. A semiconductor device package as recited in claim 20 wherein a first end of the wire is ball bonded to the semiconductor die such that the first end of the wire terminates with a squashed ball formation that is attached to the die and wherein a second end of the wire is stitch bonded to the contact lead.

22. A semiconductor device package as recited in claim 21 wherein a segment of the wire that is proximate to the squashed ball formation has a curvature that only curves towards the contact lead.

23. A semiconductor device package as recited in claim 20 wherein a top surface of each of the semiconductor die and the contact lead are approximately within 3 mils of each other.

24. A semiconductor device package as recited in claim 20 wherein a heat affect zone extends approximately 3-4 mils above the semiconductor die and wherein the height of the wire loop is smaller than or substantially equal to a height of the heat affected zone.